I.F. PENTODE

Pentode with variable transconductance intended for use as I.F. amplifier in television receivers.

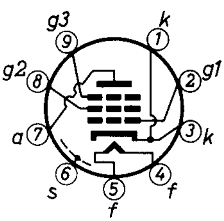
QUICK REFERENCE DATA			
Anode current	I_a	12	mA
Transconductance	S	12.5	mA/V
Internal resistance	R_i	500	kΩ

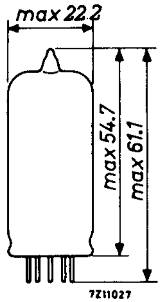
HEATING: Indirect by A.C. or D.C.; parallel or series supply

Heater voltage	V_f	6.3	V
Heater current	I_f	300	mA

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Noval





CAPACITANCES

Anode to all except grid No.1	$C_{a(g_1)}$	3	pF
Grid No.1 to all except anode	$C_{g_1(a)}$	9.5	pF
Anode to grid No.1	C_{ag_1}	max. 0.005	pF
Grid No.1 to grid No.2	$C_{g_1g_2}$	2.8	pF

TYPICAL CHARACTERISTICS

Anode voltage	V_a	200	V
Grid No.3 voltage	V_{g_3}	0	V
Grid No.2 voltage	V_{g_2}	90	V
Grid No.1 voltage	V_{g_1}	-2	V
Anode current	I_a	12	mA
Grid No.2 current	I_{g_2}	4.5	mA
Transconductance	S	12.5	mA/V
Internal resistance	R_i	500	kΩ
Input resistance grid No.1 (f = 40 MHz)	r_{g_1}	13	kΩ
Equivalent noise resistance (f = 40 MHz)	R_{eq}	490	Ω

OPERATING CHARACTERISTICS

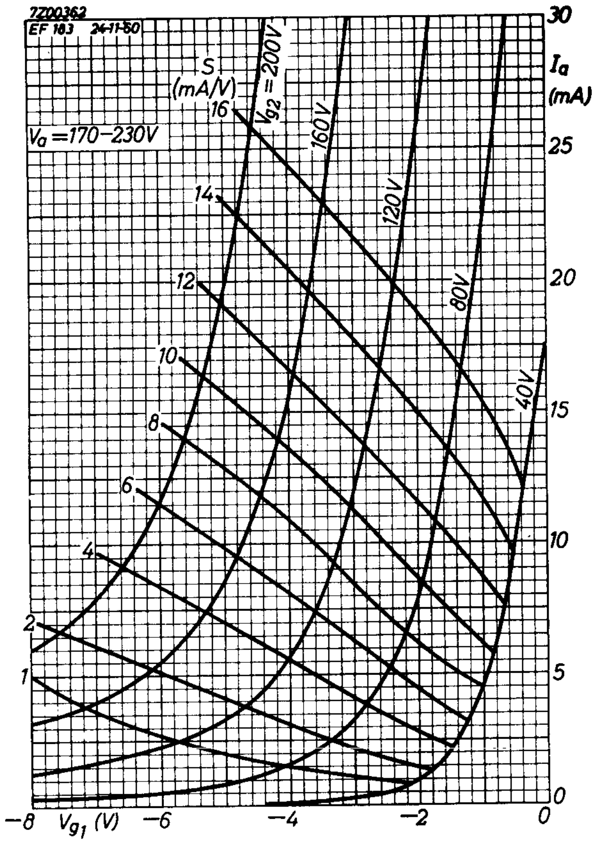
Anode voltage	V_a	170		200		230		V
Grid No.3 voltage	V_{g_3}	0		0		0		V
Grid No.2 supply voltage	V_{bg_2}	170		200		230		V
Grid No.2 resistor	R_{g_2}	15		24		39		kΩ
Grid No.1 voltage	V_{g_1}	-1.8	-7.5	-2.0	-9.5	-2.1	-12	V
Anode current	I_a	14	2.7	12	2.7	10.5	2.4	mA
Transconductance	S	14	0.7	12.5	0.62	10.6	0.5	mA/V

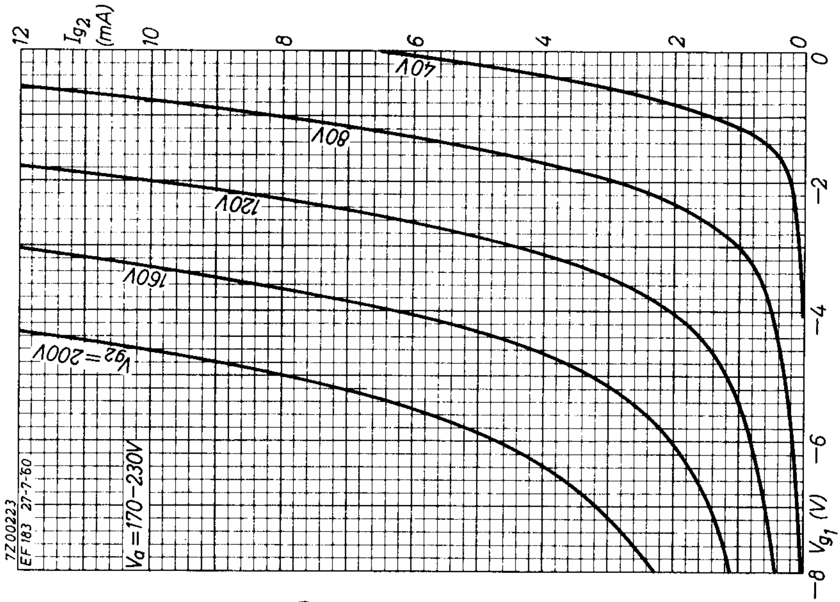
REMARK

Operation with cathode bias resistor and/or screen grid resistor is recommended.

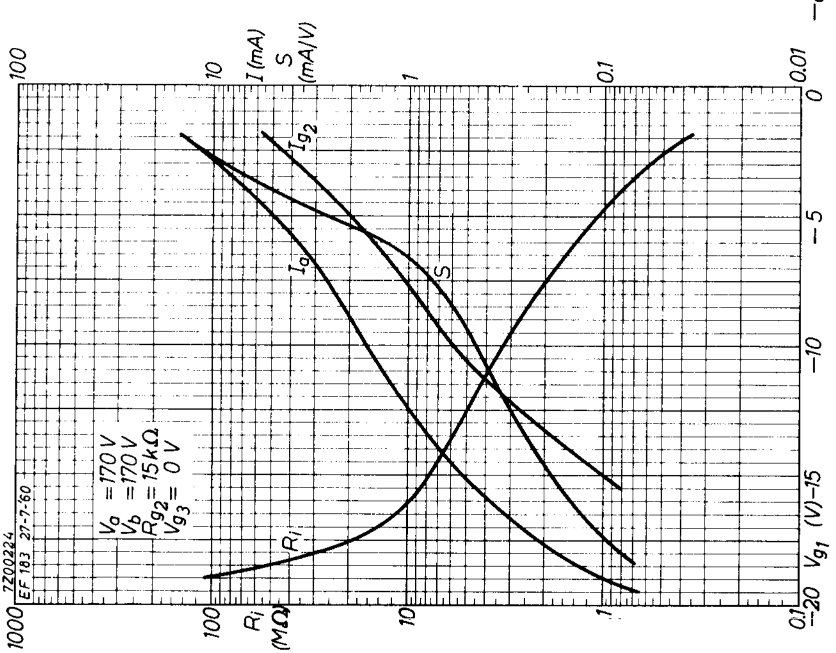
LIMITING VALUES (Design centre rating system)

Anode voltage	V_{a_0}	max.	550	V
	V_a	max.	250	V
Anode dissipation	W_a	max.	2.5	W
Grid No.2 voltage	V_{g2_0}	max.	550	V
	V_{g2}	max.	250	V
Grid No.2 dissipation	W_{g2}	max.	0.65	W
Grid No.1 voltage, negative peak	$-V_{g1p}$	max.	50	V
Cathode current	I_k	max.	20	mA
Cathode to heater voltage	V_{kf}	max.	150	V
Grid No.3 resistor	R_{g3}	max.	50	kΩ
Grid No.1 resistor	R_{g1}	max.	1	MΩ

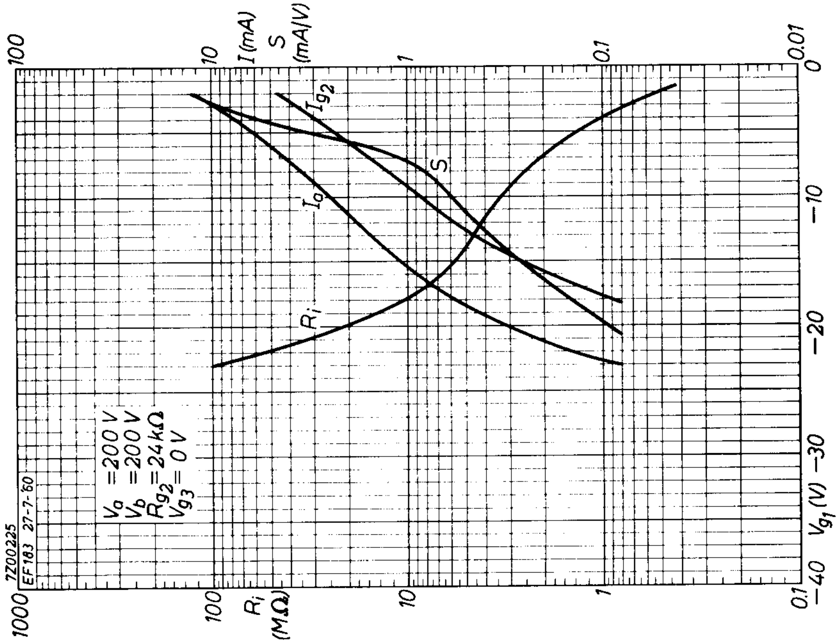


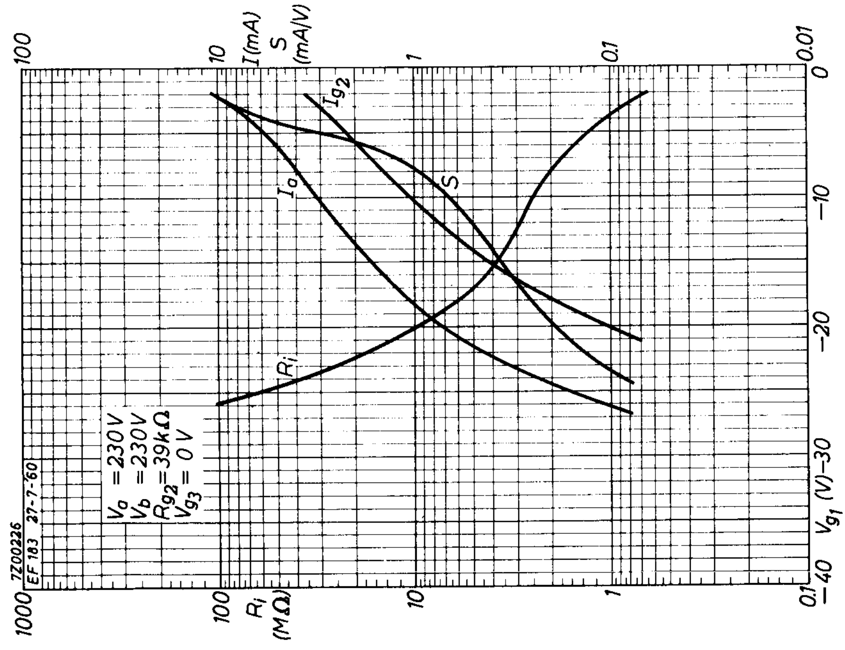


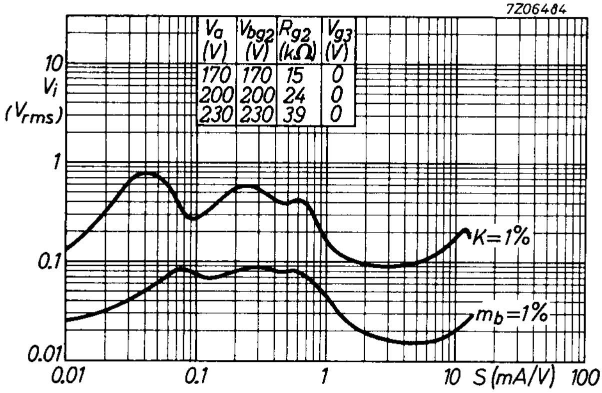
I_{g2} (mA)
12
10
8
6
4
2
0
40V
80V
120V
160V
V_{g2}=200V
V_a=170–230V
7Z00223
EF 183 27-7-60
V_{g1} (V)
0
−2
−4
−6
−8



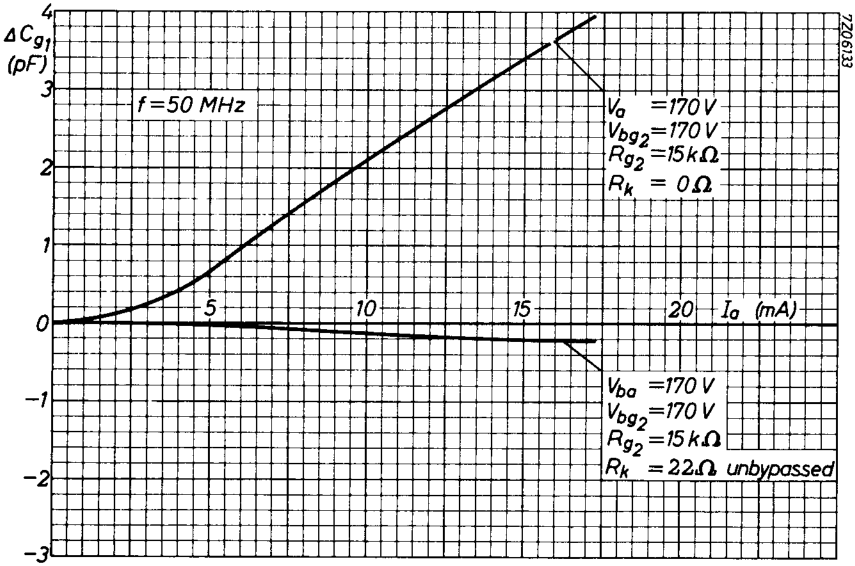
100
10
I (mA)
S (mA/V)
1
0.1
0.01
I_{g2}
I_a
S
R_i
V_a = 170 V
V_b = 170 V
R_{g2} = 15 kΩ
V_{g3} = 0 V
7Z00224
EF 183 27-7-60
0
−5
−10
−15
−20
V_{g1} (V)
1000
100
R_i (MΩ)
10
1
0.1


7Z00225
EF183 27-7-'60
V_a = 200 V
V_b = 200 V
R_{g2} = 24 kΩ
V_{g3} = 0 V
I (mA)
S (mA/V)
R_i (MΩ)
V_{g1} (V)
I_a
I_{g2}
S
R_i

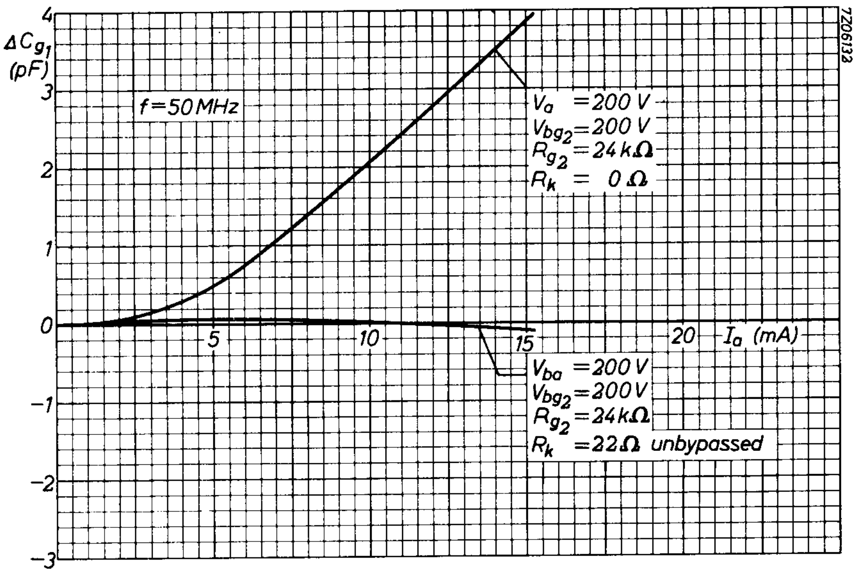

7Z00226
EF183 27-7-'60
V_a = 230 V
V_b = 230 V
R_{g2} = 39 kΩ
V_{g3} = 0 V
I (mA)
S (mA/V)
R_i (MΩ)
V_{g1} (V)
I_a
I_{g2}
S
R_i



7Z06484
| V_a (V) | V_{bg2} (V) | R_{g2} (kΩ) | V_{g3} (V) |
170 170 15 0
200 200 24 0
230 230 39 0
V_i (V_{rms})
10
1
0.1
0.01
K=1%
m_b=1%
0.01
0.1
1
10
S (mA/V)
100



7Z06133
ΔC_{g1} (pF)
f = 50 MHz
V_a = 170 V
V_{bg2} = 170 V
R_{g2} = 15 kΩ
R_k = 0 Ω
I_a (mA)
V_{ba} = 170 V
V_{bg2} = 170 V
R_{g2} = 15 kΩ
R_k = 22 Ω unbypassed
4
3
2
1
0
−1
−2
−3
5
10
15
20



ΔCg1 (pF)
4
3
2
1
0
−1
−2
−3
f=50MHz
Va =200 V
Vbg2=200 V
Rg2=24 kΩ
Rk = 0 Ω
5
10
15
20
Ia (mA)
Vba =200 V
Vbg2=200 V
Rg2=24kΩ
Rk =22Ω unbypassed
7Z06132

PHILIPS

Data handbook

Electronic components and materials

EF183

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7	7	1970.01
8	FP	1999.08.16